SEQUENCE LISTING

<110> Union Chimique Belge, S.A.
       Nocka, Karl
       Pirozzi, Gregory
       Einstein, Richard

<120> NOVEL GENES ASSOCIATED WITH ALLERGIC HYPERSENSITIVITY AND MAST CELL
ACTIVATION

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Glu Glu Val Cys Tyr Thr Val Ile Asn His Ile Pro His Gln Arg Ser
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Ser Leu Ser Ser Asn Asp Asp Gly Tyr Glu Asn Ile Asp Ser Leu Thr
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Arg Lys Val Arg Gln Phe Arg Glu Arg Ser Glu Thr Glu Tyr Ala Leu
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Val Gln Arg Leu Trp Val Ser Arg Leu Leu Arg His Arg Lys Ala Gln
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ctc ttg ctg gtc aac ctg cta acc ttt ggc ctg gag gtg tgt ttg gcc        392
Leu Leu Leu Val Asn Leu Leu Thr Phe Gly Leu Glu Val Cys Leu Ala
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gca ggc atc acc tat gtg ccg cct ctg ctg ctg gaa gtg ggg gta gag        440
Ala Gly Ile Thr Tyr Val Pro Pro Leu Leu Leu Glu Val Gly Val Glu
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gag aag ttc atg acc atg gtg ctg ggt gag tca cta cat cct cct tcc        488
Glu Lys Phe Met Thr Met Val Leu Gly Glu Ser Leu His Pro Pro Ser
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ttc ctg ttc cag ata cat gcc acc tgg cat gtg gga cag gag tac ctc        536
Phe Leu Phe Gln Ile His Ala Thr Trp His Val Gly Gln Glu Tyr Leu
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tgc cct ggg agc tgc ttg gag gga gag gtg gtc tgc tgg gaa ggc att        584
Cys Pro Gly Ser Cys Leu Glu Gly Glu Val Val Cys Trp Glu Gly Ile
                85                  90                  95

gct ggg cag gag ggt gac cct ggg ctg agg ggg cac acc aag aga aag        632
Ala Gly Gln Glu Gly Asp Pro Gly Leu Arg Gly His Thr Lys Arg Lys
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aag aga ata cca agg aca tac ccc agt cac ctc tgg atc cct ggt cct        680
Lys Arg Ile Pro Arg Thr Tyr Pro Ser His Leu Trp Ile Pro Gly Pro
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gca cag agc ctg gct cat agg aga cac tgg aga aat gct cct aac ctt        728
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Trp Leu Ala Leu Leu
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5

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cca ttg act cat act act tcc ctt ctt gca ggc att ggt cca gtg ctg     1348
Pro Leu Thr His Thr Thr Ser Leu Leu Ala Gly Ile Gly Pro Val Leu
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ggc ctg gtc tgt gtc ccg ctc cta ggc tca gcc agt gac cac tgg cgt     1396
Gly Leu Val Cys Val Pro Leu Leu Gly Ser Ala Ser Asp His Trp Arg
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gga cgc tat ggc cgc cgc cgg ccc ttc atc tgg gca ctg tcc ttg ggc     1444
Gly Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp Ala Leu Ser Leu Gly
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atc ctg ctg agc ctc ttt ctc atc cca agg gcc ggc tgg cta gca ggg     1492
Ile Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala Gly Trp Leu Ala Gly
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ggc gtg ggg ctg ctg gac ttc tgt ggc cag gtg tgc ttc act cca ctg     1588
Gly Val Gly Leu Leu Asp Phe Cys Gly Gln Val Cys Phe Thr Pro Leu
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gag gcc ctg ctc tct gac ctc ttc cgg gac ccg gac cac tgt cgc cag     1636
Glu Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro Asp His Cys Arg Gln
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gcc tac tct gtc tat gcc ttc atg atc agt ctt ggg ggc tgc ctg ggc     1684
Ala Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu Gly Gly Cys Leu Gly
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tac ctc ctg cct gcc att gac tgg gac acc agt gcc ctg gcc ccc tac     1732
Tyr Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser Ala Leu Ala Pro Tyr
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ctg ggc acc cag gag gag tgc ctc ttt ggc ctg ctc acc ctc atc ttc     1780
Leu Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu Leu Thr Leu Ile Phe
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ctc acc tgc gta gca gcc aca ctg ctg gtg gct gag gag gca gcg ctg     1828
Leu Thr Cys Val Ala Ala Thr Leu Leu Val Ala Glu Glu Ala Ala Leu
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ggc ccc acc gag cca gca gaa ggg ctg tcg gcc ccc tcc ttg tcg ccc     1876
Gly Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala Pro Ser Leu Ser Pro
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cac tgc tgt cca tgc cag gcc cta agc ctg gag ctc cct tcc cta atg     1924
His Cys Cys Pro Cys Gln Ala Leu Ser Leu Glu Leu Pro Ser Leu Met
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6

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Ser Pro Ser Trp Ile Val Pro Ser Cys Cys Pro Arg Trp Pro His Pro
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Cys Leu Trp Ala Pro Leu Ser Ser Ser Ala Ser Leu Ser Leu Pro Ile
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7

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Ala Ala Gly Ile Thr Tyr Val Pro Pro Leu Leu Leu Glu Val Gly Val
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Glu Glu Lys Phe Met Thr Met Val Leu Gly Glu Ser Leu His Pro Pro
    50                  55                  60

Ser Phe Leu Phe Gln Ile His Ala Thr Trp His Val Gly Gln Glu Tyr
65                  70                  75                  80

Leu Cys Pro Gly Ser Cys Leu Glu Gly Glu Val Val Cys Trp Glu Gly
                85                  90                  95

Ile Ala Gly Gln Glu Gly Asp Pro Gly Leu Arg Gly His Thr Lys Arg
                100                 105                 110

Lys Lys Arg Ile Pro Arg Thr Tyr Pro Ser His Leu Trp Ile Pro Gly
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Leu Trp Leu Ala Leu Leu
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8

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Ile Gly Pro Val Leu Gly Leu Val Cys Val Pro Leu Leu Gly Ser Ala
            35                  40                  45

Ser Asp His Trp Arg Gly Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp
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Ala Leu Ser Leu Gly Ile Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala
65                  70                  75                  80

Gly Trp Leu Ala Gly Leu Leu Cys Pro Asp Pro Arg Pro Leu Glu Leu
                85                  90                  95

Ala Leu Leu Ile Leu Gly Val Gly Leu Leu Asp Phe Cys Gly Gln Val
            100                 105                 110

Cys Phe Thr Pro Leu Glu Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro
        115                 120                 125

Asp His Cys Arg Gln Ala Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu
    130                 135                 140

Gly Gly Cys Leu Gly Tyr Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser
145                 150                 155                 160

Ala Leu Ala Pro Tyr Leu Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu
                165                 170                 175

Leu Thr Leu Ile Phe Leu Thr Cys Val Ala Ala Thr Leu Leu Val Ala
            180                 185                 190

Glu Glu Ala Ala Leu Gly Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala
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Pro Ser Leu Ser Pro His Cys Cys Pro Cys Gln Ala Leu Ser Leu Glu
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9

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Leu Pro Ser Leu Met Asp Thr Trp Val Leu Glu Ala Val Ala Cys Ser
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His Leu His Pro Arg Ser Ala Gly Pro Leu Pro Val Met Ser Pro Tyr
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Val Trp Trp Trp Val Ser Pro Pro Arg Pro Gly Trp Phe Arg Ala Gly
            260             265             270

Ala Ser Ala Trp Thr Ser Pro Ser Trp Ile Val Pro Ser Cys Cys Pro
        275             280             285

Arg Trp Pro His Pro Cys Leu Trp Ala Pro Leu Ser Ser Ser Ala Ser
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Leu Ser Leu Pro Ile Trp Cys Leu Pro Gln Ala Trp Val Trp Ser Pro
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Phe Thr Leu Leu His Arg
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ccg gcg ctg ctc gag gct gcc cgc gcg cgc tac gag agc ctg cac atc    460
Pro Ala Leu Leu Glu Ala Ala Arg Ala Arg Tyr Glu Ser Leu His Ile
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10

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Phe Tyr Ser Thr Ser Ala Ala Ser Arg Ser Ser Ser Ala Ala Ser Ser
45              50                  55                  60

gac gac gag cgc gag ccc ccg gga ccc cca ggg gcc gcc ccg cca ccg      604
Asp Asp Glu Arg Glu Pro Pro Gly Pro Pro Gly Ala Ala Pro Pro Pro
            65              70                  75

ccc cgc gcc ccg gac gca cag gag ccg gag gag gac gag gcc ggc gcg      652
Pro Arg Ala Pro Asp Ala Gln Glu Pro Glu Glu Asp Glu Ala Gly Ala
            80                  85                  90

ggc tgg agc gca gcg ctg cgg gac cgc ccg ccc ccg cgc ttc gag gat      700
Gly Trp Ser Ala Ala Leu Arg Asp Arg Pro Pro Pro Arg Phe Glu Asp
            95                  100                 105

acc ggc ggt ccc acc cga aag atg ccc ccc agc gcc agt gcc gtg gac      748
Thr Gly Gly Pro Thr Arg Lys Met Pro Pro Ser Ala Ser Ala Val Asp
    110                 115                 120

ttc ttc cag ctc ttt gtc cca gac aac gtc ctc aag aac atg gtg gtg      796
Phe Phe Gln Leu Phe Val Pro Asp Asn Val Leu Lys Asn Met Val Val
125                 130                 135                 140

cag aca aac atg tat gcc aag aag ttc cag gag cgg ttt ggg agc gac      844
Gln Thr Asn Met Tyr Ala Lys Lys Phe Gln Glu Arg Phe Gly Ser Asp
                145                 150                 155

gga gcc tgg gtg gag gtg acg ctg acg gag atg aag gcg ttc ctg ggc      892
Gly Ala Trp Val Glu Val Thr Leu Thr Glu Met Lys Ala Phe Leu Gly
            160                 165                 170

tac atg atc tcc acc agc atc tcc cac tgc gag tcc gtc ctc agc atc      940
Tyr Met Ile Ser Thr Ser Ile Ser His Cys Glu Ser Val Leu Ser Ile
            175                 180                 185

tgg agc gga ggc ttc tac agc aac cgc agc ctc gcc ctc gtc atg agc      988
Trp Ser Gly Gly Phe Tyr Ser Asn Arg Ser Leu Ala Leu Val Met Ser
    190                 195                 200

cag gcc cgc ttc gag aag atc ctc aag tac ttc cac gtc gtg gcc ttc      1036
Gln Ala Arg Phe Glu Lys Ile Leu Lys Tyr Phe His Val Val Ala Phe
205                 210                 215                 220

cgc tcc agc cag acc acg cac ggg ctc tac aag gtc cag ccc ttc ctc      1084
Arg Ser Ser Gln Thr Thr His Gly Leu Tyr Lys Val Gln Pro Phe Leu
                225                 230                 235

gac tcc ctg cag aac agc ttc gac tct gcc ttc agg cct tcc caa acc      1132
Asp Ser Leu Gln Asn Ser Phe Asp Ser Ala Phe Arg Pro Ser Gln Thr
                240                 245                 250

cag gtg cta cat gaa ccc ctg atc gat gag gat cct gta ttc att gcc      1180
Gln Val Leu His Glu Pro Leu Ile Asp Glu Asp Pro Val Phe Ile Ala
            255                 260                 265
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11

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acg tgc aca gag cgg gag ctg cga aag agg aaa aag cgg aaa ttc agc        1228
Thr Cys Thr Glu Arg Glu Leu Arg Lys Arg Lys Lys Arg Lys Phe Ser
    270             275             280

ctc tgg gtc aga caa tgt tct tcc act ggc ttc atc atc cag att tat        1276
Leu Trp Val Arg Gln Cys Ser Ser Thr Gly Phe Ile Ile Gln Ile Tyr
285             290             295                 300

gtc cac ctg aag gaa ggt ggg ggc cca gat ggc ctg gat gcg ctg aag        1324
Val His Leu Lys Glu Gly Gly Gly Pro Asp Gly Leu Asp Ala Leu Lys
            305             310             315

aat aag ccc cag ctc cac agc atg gtg gcc agg agc ctg tgc cgg aac        1372
Asn Lys Pro Gln Leu His Ser Met Val Ala Arg Ser Leu Cys Arg Asn
            320             325             330

gcg gca ggc aag aac tac atc att ttc acg ggg ccc agc atc acc agc        1420
Ala Ala Gly Lys Asn Tyr Ile Ile Phe Thr Gly Pro Ser Ile Thr Ser
            335             340             345

ctg acg ctg ttt gaa gag ttt gag aag caa ggg att tac tgc tgc ggc        1468
Leu Thr Leu Phe Glu Glu Phe Glu Lys Gln Gly Ile Tyr Cys Cys Gly
    350             355             360

ttg ctc cgc gcg cgg aag agt gac tgc acc ggc ctc cca ctg tcc atg        1516
Leu Leu Arg Ala Arg Lys Ser Asp Cys Thr Gly Leu Pro Leu Ser Met
365             370             375             380

ctg acc aac cca gcc aca ccc ccg gcc cgg ggc cag tac caa atc aag        1564
Leu Thr Asn Pro Ala Thr Pro Pro Ala Arg Gly Gln Tyr Gln Ile Lys
            385             390             395

atg aag ggg aac atg tcc ttg atc tgc tgg tac aac aaa gga cac ttc        1612
Met Lys Gly Asn Met Ser Leu Ile Cys Trp Tyr Asn Lys Gly His Phe
            400             405             410

cgc ttc ctg acc aac gcc tac tcc ccg gtg cag cag gga gtc atc atc        1660
Arg Phe Leu Thr Asn Ala Tyr Ser Pro Val Gln Gln Gly Val Ile Ile
        415             420             425

aaa agg aag agt ggg gag atc cca tgc ccc ttg gcc gtg gag gcg ttt        1708
Lys Arg Lys Ser Gly Glu Ile Pro Cys Pro Leu Ala Val Glu Ala Phe
        430             435             440

gcc gct cac ctg agc tac atc tgc aga tac gat gac aaa tac agc aag        1756
Ala Ala His Leu Ser Tyr Ile Cys Arg Tyr Asp Asp Lys Tyr Ser Lys
445             450             455             460

tat ttc att tct cat aaa cca aac aag acc tgg cag cag gtg ttc tgg        1804
Tyr Phe Ile Ser His Lys Pro Asn Lys Thr Trp Gln Gln Val Phe Trp
            465             470             475

ttc gcc atc agc atc gcc atc aac aat gcc tac atc ctg tac aaa atg        1852
Phe Ala Ile Ser Ile Ala Ile Asn Asn Ala Tyr Ile Leu Tyr Lys Met
            480             485             490

tca gac gcc tac cac gtg aag agg tac agc cgg gcg cag ttt gga gag        1900
Ser Asp Ala Tyr His Val Lys Arg Tyr Ser Arg Ala Gln Phe Gly Glu
            495             500             505

aga ctc gtc aga gag ctg ctg ggc ttg gag gat gcc tct ccg acc cac        1948
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12

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Arg Leu Val Arg Glu Leu Leu Gly Leu Glu Asp Ala Ser Pro Thr His
     510                 515                 520

tga tgctgggggc gcaggactcg gtcaagggag gggcaagagg aggaggagag          2001

cctgccgttc caacttgccc atcagagacc cggacacggc ctggtgtgtg gcttgctgcc   2061

tgggagggat gcacagggcc tctggaggga caggatggac ctggtcagag gacggttgct   2121

gtcctcattt gcattccaag aagagcatgt cctccctcga gaaacagtgc cgccggtgtg   2181

atgagcactt acacccacgt tctcaagggc agattctctc atgacatccg tggagcttgc   2241

gaggcagcgt ggactggtga ctgtgaagga aggcccccgt ggtagaatga gctggagcac   2301

gctctaagag agatgcctgc ttcctaaaga tctacagcaa tctgggacgt ggttcaagtt   2361

caagacttga aggaagcaaa gacgccctgc atggttacaa tggctcaggt gtcaggggag   2421

gccggagggt tttccagcat ttgcctcatg ccagcacctt gaaccggtc tcttagaaga   2481

agacacacat cctgggtgta cagtggtgaa atggggagtg ggtgcccatt ctgaaaaacg   2541

aggcattcct gctcattccc tctgcttagc tggtgggcag gggagagagg gaaatgccaa   2601

aaacttggag tgaaggatga tgctattttt tatttttaaa tatatcttca ggttattttc   2661

ttactgttgc ttcagatcta atgtaaaagg cagatgtccc ctcctctcca ccccgacgc   2721

tgaccccggc ctcagtcacg gctctttgca tgatcacagt tctgtgttct ggcctgtggc   2781

agggccggga agggccgctg gcttccgaac agacgtggtt gctctccacg aggcgcatgg   2841

ggagcccgcg ggccctaagc tttgtcgcag atgtcatcat tggcagaatt acttgtcttg   2901

aaaaataagt agcattgctg aaacacacaa ccgaattctc tacgatggcc atttgctcat   2961

tgtctttcct ctgtgtgtag tgagtgaccc tggcagtgtt tgcctgctca gagtggcccc   3021

tcagaacaac agggctggcc ttggaaaaac cccaaaacag gactgtggtg acaactctgg   3081

tcaggtgtga tttgacatga gggccggagg cggttgctga cggcaggact ggagaggctg   3141

cgtgcccggc actggcagcg aggctcgtgt gtcccccagg cagatctggg cactttccca   3201

acccaggttt atgcgtctcc agggaagcct cggtgccaga gtggtgggca gatctgacca   3261

tccccacaga ccagaaacaa ggaatttctg ggattaccca gtcccccttc aacccagttg   3321

atgtaaccac ctcatttttt acaaatacag aatctattct actcaggcta tgggcctcgt   3381

cctcactcag ttattgcgag tgttgctgtc cgcatgctcc gggccccacg tggctcctgt   3441

gctctagatc atggtgactc ccccgccctg tggttggaat cgatgccacg gattgcaggc   3501

caaatttcag atcgtgtttc caaacaccct tgctgtgccc tttaatggga ttgaaagcac   3561

ttttaccaca tggagaaata tattttttaat ttgtgatgct tttctacaag gtccactatt   3621

tctgagttta atgtgtttcc aacacttaag gagactctaa tgaaagctga tgaattttct   3681
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13

tttctgtcca aacaagtaaa ataaaaataa aagtctattt agatgttaaa aaaaaaaaaa   3741

aa   3743

<210>   7
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<212>   PRT
<213>   Homo sapiens

<400>   7

Met Ala Glu Gly Gly Gly Gly Ala Arg Arg Arg Ala Pro Ala Leu Leu
1   5   10   15

Glu Ala Ala Arg Ala Arg Tyr Glu Ser Leu His Ile Ser Asp Asp Val
                20   25   30

Phe Gly Glu Ser Gly Pro Asp Ser Gly Gly Asn Pro Phe Tyr Ser Thr
            35   40   45

Ser Ala Ala Ser Arg Ser Ser Ser Ala Ala Ser Ser Asp Asp Glu Arg
    50   55   60

Glu Pro Pro Gly Pro Pro Gly Ala Ala Pro Pro Pro Pro Arg Ala Pro
65   70   75   80

Asp Ala Gln Glu Pro Glu Glu Asp Glu Ala Gly Ala Gly Trp Ser Ala
                85   90   95

Ala Leu Arg Asp Arg Pro Pro Pro Arg Phe Glu Asp Thr Gly Gly Pro
            100   105   110

Thr Arg Lys Met Pro Pro Ser Ala Ser Ala Val Asp Phe Phe Gln Leu
        115   120   125

Phe Val Pro Asp Asn Val Leu Lys Asn Met Val Val Gln Thr Asn Met
    130   135   140

Tyr Ala Lys Lys Phe Gln Glu Arg Phe Gly Ser Asp Gly Ala Trp Val
145   150   155   160

Glu Val Thr Leu Thr Glu Met Lys Ala Phe Leu Gly Tyr Met Ile Ser
            165   170   175

Thr Ser Ile Ser His Cys Glu Ser Val Leu Ser Ile Trp Ser Gly Gly
            180   185   190

Phe Tyr Ser Asn Arg Ser Leu Ala Leu Val Met Ser Gln Ala Arg Phe

14

Glu Lys Ile Leu Lys Tyr Phe His Val Val Ala Phe Arg Ser Ser Gln
    210   215   220

Thr Thr His Gly Leu Tyr Lys Val Gln Pro Phe Leu Asp Ser Leu Gln
225   230   235   240

Asn Ser Phe Asp Ser Ala Phe Arg Pro Ser Gln Thr Gln Val Leu His
                245   250   255

Glu Pro Leu Ile Asp Glu Asp Pro Val Phe Ile Ala Thr Cys Thr Glu
            260   265   270

Arg Glu Leu Arg Lys Arg Lys Lys Arg Lys Phe Ser Leu Trp Val Arg
        275   280   285

Gln Cys Ser Ser Thr Gly Phe Ile Ile Gln Ile Tyr Val His Leu Lys
    290   295   300

Glu Gly Gly Gly Pro Asp Gly Leu Asp Ala Leu Lys Asn Lys Pro Gln
305   310   315   320

Leu His Ser Met Val Ala Arg Ser Leu Cys Arg Asn Ala Ala Gly Lys
            325   330   335

Asn Tyr Ile Ile Phe Thr Gly Pro Ser Ile Thr Ser Leu Thr Leu Phe
        340   345   350

Glu Glu Phe Glu Lys Gln Gly Ile Tyr Cys Cys Gly Leu Leu Arg Ala
    355   360   365

Arg Lys Ser Asp Cys Thr Gly Leu Pro Leu Ser Met Leu Thr Asn Pro
    370   375   380

Ala Thr Pro Pro Ala Arg Gly Gln Tyr Gln Ile Lys Met Lys Gly Asn
385   390   395   400

Met Ser Leu Ile Cys Trp Tyr Asn Lys Gly His Phe Arg Phe Leu Thr
            405   410   415

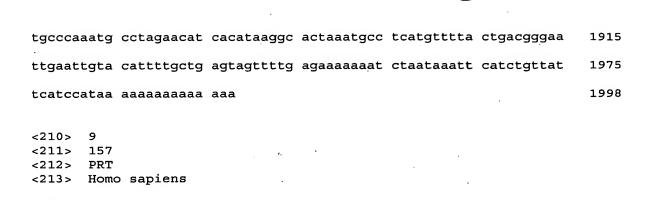Asn Ala Tyr Ser Pro Val Gln Gln Gly Val Ile Ile Lys Arg Lys Ser
            420   425   430

Gly Glu Ile Pro Cys Pro Leu Ala Val Glu Ala Phe Ala Ala His Leu
        435   440   445

15

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Ser Tyr Ile Cys Arg Tyr Asp Asp Lys Tyr Ser Lys Tyr Phe Ile Ser
    450                 455                 460

His Lys Pro Asn Lys Thr Trp Gln Gln Val Phe Trp Phe Ala Ile Ser
465                 470                 475                 480

Ile Ala Ile Asn Asn Ala Tyr Ile Leu Tyr Lys Met Ser Asp Ala Tyr
                485                 490                 495

His Val Lys Arg Tyr Ser Arg Ala Gln Phe Gly Glu Arg Leu Val Arg
                500                 505                 510

Glu Leu Leu Gly Leu Glu Asp Ala Ser Pro Thr His
        515                 520
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<210> 8
<211> 1998
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (162)..(635)
<223> 1st open reading frame

<400> 8

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gcttccaaac tcattttga ataatactag gctacaaaga attacactgt gaattcatta     120

agggtaacac caaatcacta aacagcactg tttgtacaga a atg tcg aaa agc tgt     176
                                            Met Ser Lys Ser Cys
                                             1               5

gga aat aat tta gcg gcc att tct gta gga att tcg ctt ctt tta ctc     224
Gly Asn Asn Leu Ala Ala Ile Ser Val Gly Ile Ser Leu Leu Leu Leu
                10                  15                  20

tta gtg gtt tgt gga att ggg tgt gtt tgg cac tgg aaa cac cgt gtt     272
Leu Val Val Cys Gly Ile Gly Cys Val Trp His Trp Lys His Arg Val
            25                  30                  35

gcc aca cga ttt acc tta ccg agg ttt tta caa agg aga agc agc agg     320
Ala Thr Arg Phe Thr Leu Pro Arg Phe Leu Gln Arg Arg Ser Ser Arg
            40                  45                  50

aga aaa gtc tgt act aaa aca ttc ttg ggc ccc cgc atc att ggc tta     368
Arg Lys Val Cys Thr Lys Thr Phe Leu Gly Pro Arg Ile Ile Gly Leu
        55                  60                  65

agg cat gaa atc tca gtt gaa acc caa gac cac aaa tct gct gtc agg     416
Arg His Glu Ile Ser Val Glu Thr Gln Asp His Lys Ser Ala Val Arg
70                  75                  80                  85
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16

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gga aat aac aca cac gac aac tat gaa aat gtg gaa gca ggt cct ccc      464
Gly Asn Asn Thr His Asp Asn Tyr Glu Asn Val Glu Ala Gly Pro Pro
                90                   95                   100

aaa gct aaa gga aaa acc gat aag gaa cta tat gaa aac aca ggg cag      512
Lys Ala Lys Gly Lys Thr Asp Lys Glu Leu Tyr Glu Asn Thr Gly Gln
            105               110               115

tct aat ttc gag gag cat atc tat gga aat gag aca tct tct gac tat      560
Ser Asn Phe Glu Glu His Ile Tyr Gly Asn Glu Thr Ser Ser Asp Tyr
        120               125               130

tat aac ttc cag aag cct cgt cct tct gaa gtt cct caa gat gaa gat      608
Tyr Asn Phe Gln Lys Pro Arg Pro Ser Glu Val Pro Gln Asp Glu Asp
        135               140               145

ata tac att ctt cca gat tca tat tag cttttcaaaa tattgacttt           655
Ile Tyr Ile Leu Pro Asp Ser Tyr
150                   155

tgttattgga tgataaatat tcactgtaat ttttcaacag caaagacaag gaatcaaact    715

aaatgttgat caactgtaga ctggataaag aaaatgtggt acacatacac catagaatat    775

tatgcagccg taaaaaaga acaaaactaa catgggaaca gaaaatcaaa taccacatat     835

tctcacttaa aagtgggagc taaataataa gaacacatgg agagaaggag aggaacaaca    895

gacactgggg cctacttgag ggaggacagt ggaaggaggg agaggttcag ggaaaaaaaa    955

aatatcaggt actatgctta gtacacacat gatgaaataa tctgtacacc aaacccccaa   1015

gtcacaagtg ttcctacata acaaacctga acatgtaccc ctgaacataa aattataatt   1075

aaaatattaa aaataattca ctgtgatttt tattgtactg atgccattct taatcaagtt   1135

ctgataagtg gatggtctct gcctatctcc acctttctga atcctatgtg tatcgctgtg   1195

gattaattct agatatcttc tccaccctcc ttgcaccaga ctaaatctgt attatgtgat   1255

attgattctt ccttctaaat attacccgtt atctctttcc tttatttcta ccattatctt   1315

tatctggctc agaattattg tcataggctc ctaactgttc ctcctgcttc tagtttctac   1375

ccactcaatc aattaccgat ggtgttgcca gatttatctt cagaaaatat tcctaacagc   1435

cacattattt ctttcactta aaatgtttta atgccccctc tttgcaaaag acataatacc   1495

cataatttga actccaaaat ttatggtttt ccacaattgg ttccaattca cttttccagt   1555

gacttctctt actatctctc atttctttgc cttcagcaga atcatcttaa aacctgccaa   1615

acttatcctt ccttcacagc tttgcttttc tgcctcttct ctcaagcctg cttcagatca   1675

taagttcttc cacacatctc ctgaatcact ccaaacccgc atttaccttt ttattttctg   1735

atataagctt tgatgcctct tcaattctta ggacatttaa acatatgaat gttgccacag   1795

cattttatta cctagcttca tatgaaaatg tcttaaattc ccacctaaat gaaaagaaac   1855
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17

tgcccaaatg cctagaacat cacataaggc actaaatgcc tcatgtttta ctgacgggaa   1915

ttgaattgta cattttgctg agtagttttg agaaaaaaat ctaataaatt catctgttat   1975

tcatccataa aaaaaaaaaa aaa   1998

<210>   9
<211>   157
<212>   PRT
<213>   Homo sapiens

<400>   9

Met Ser Lys Ser Cys Gly Asn Asn Leu Ala Ala Ile Ser Val Gly Ile
1   5   10   15

Ser Leu Leu Leu Leu Leu Val Val Cys Gly Ile Gly Cys Val Trp His
            20   25   30

Trp Lys His Arg Val Ala Thr Arg Phe Thr Leu Pro Arg Phe Leu Gln
        35   40   45

Arg Arg Ser Ser Arg Arg Lys Val Cys Thr Lys Thr Phe Leu Gly Pro
    50   55   60

Arg Ile Ile Gly Leu Arg His Glu Ile Ser Val Glu Thr Gln Asp His
65   70   75   80

Lys Ser Ala Val Arg Gly Asn Asn Thr His Asp Asn Tyr Glu Asn Val
                85   90   95

Glu Ala Gly Pro Pro Lys Ala Lys Gly Lys Thr Asp Lys Glu Leu Tyr
            100   105   110

Glu Asn Thr Gly Gln Ser Asn Phe Glu Glu His Ile Tyr Gly Asn Glu
            115   120   125

Thr Ser Ser Asp Tyr Tyr Asn Phe Gln Lys Pro Arg Pro Ser Glu Val
        130   135   140
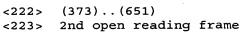

Pro Gln Asp Glu Asp Ile Tyr Ile Leu Pro Asp Ser Tyr
145   150   155

<210>   10
<211>   1998
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS

18

<400>   10

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gcttccaaac tcatttttga ataatactag gctacaaaga attacactgt gaattcatta    120

agggtaacac caaatcacta aacagcactg tttgtacaga aatgtcgaaa agctgtggaa    180

ataatttagc ggccatttct gtaggaattt cgcttctttt actcttagtg gtttgtggaa    240

ttgggtgtgt ttggcactgg aaacaccgtg ttgccacacg atttacctta ccgaggtttt    300

tacaaaggag aagcagcagg agaaaagtct gtactaaaac attcttgggc ccccgcatca    360

ttggcttaag gc atg aaa tct cag ttg aaa ccc aag acc aca aat ctg ctg    411
               Met Lys Ser Gln Leu Lys Pro Lys Thr Thr Asn Leu Leu
                1               5                  10

tca ggg gaa ata aca cac acg aca act atg aaa atg tgg aag cag gtc    459
Ser Gly Glu Ile Thr His Thr Thr Thr Met Lys Met Trp Lys Gln Val
 15                  20                  25

ctc cca aag cta aag gaa aaa ccg ata agg aac tat atg aaa aca cag    507
Leu Pro Lys Leu Lys Glu Lys Pro Ile Arg Asn Tyr Met Lys Thr Gln
30                  35                  40                  45

ggc agt cta att tcg agg agc ata tct atg gaa atg aga cat ctt ctg    555
Gly Ser Leu Ile Ser Arg Ser Ile Ser Met Glu Met Arg His Leu Leu
                50                  55                  60

act att ata act tcc aga agc ctc gtc ctt ctg aag ttc ctc aag atg    603
Thr Ile Ile Thr Ser Arg Ser Leu Val Leu Leu Lys Phe Leu Lys Met
                65                  70                  75

aag ata tat aca ttc ttc cag att cat att agc ttt tca aaa tat tga    651
Lys Ile Tyr Thr Phe Phe Gln Ile His Ile Ser Phe Ser Lys Tyr
                80                  85                  90

cttttgttat tggatgataa atattcactg taattttttca acagcaaaga caaggaatca    711

aactaaatgt tgatcaactg tagactggat aaagaaaatg tggtacacat acaccataga    771

atattatgca gccgtaaaaa aagaacaaaa ctaacatggg aacagaaaat caaataccac    831

atattctcac ttaaaagtgg gagctaaata ataagaacac atggagagaa ggagaggaac    891

aacagacact ggggcctact tgagggagga cagtggaagg agggagaggt tcagggaaaa    951

aaaaaatatc aggtactatg cttagtacac acatgatgaa ataatctgta caccaaaccc   1011

ccaagtcaca agtgttccta cataacaaac ctgaacatgt acccctgaac ataaaattat   1071

aattaaaata ttaaaaataa ttcactgtga tttttattgt actgatgcca ttcttaatca   1131

agttctgata agtggatggt ctctgcctat ctccaccttt ctgaatccta tgtgtatcgc   1191

tgtggattaa ttctagatat cttctccacc ctccttgcac cagactaaat ctgtattatg   1251
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19

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tgatattgat tcttccttct aaatattacc cgttatctct ttcctttatt tctaccatta    1311

tctttatctg gctcagaatt attgtcatag gctcctaact gttcctcctg cttctagttt    1371

ctacccactc aatcaattac cgatggtgtt gccagattta tcttcagaaa atattcctaa    1431

cagccacatt atttctttca cttaaaatgt tttaatgccc cctctttgca aaagacataa    1491

tacccataat ttgaactcca aaatttatgg ttttccacaa ttggttccaa ttcacttttc    1551

cagtgacttc tcttactatc tctcatttct ttgccttcag cagaatcatc ttaaaacctg    1611

ccaaacttat ccttccttca cagctttgct tttctgcctc ttctctcaag cctgcttcag    1671

atcataagtt cttccacaca tctcctgaat cactccaaac ccgcatttac cttttattt     1731

tctgatataa gctttgatgc ctcttcaatt cttaggacat ttaaacatat gaatgttgcc    1791

acagcatttt attacctagc ttcatatgaa aatgtcttaa attcccacct aaatgaaaag    1851

aaactgccca aatgcctaga acatcacata aggcactaaa tgcctcatgt tttactgacg    1911

ggaattgaat tgtacatttt gctgagtagt tttgagaaaa aaatctaata aattcatctg    1971

ttattcatcc ataaaaaaaa aaaaaaa                                         1998
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<210> 11
<211> 92
<212> PRT
<213> Homo sapiens

<400> 11

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Met Lys Ser Gln Leu Lys Pro Lys Thr Thr Asn Leu Leu Ser Gly Glu
1               5                   10                  15


Ile Thr His Thr Thr Thr Met Lys Met Trp Lys Gln Val Leu Pro Lys
            20                  25                  30


Leu Lys Glu Lys Pro Ile Arg Asn Tyr Met Lys Thr Gln Gly Ser Leu
            35                  40                  45


Ile Ser Arg Ser Ile Ser Met Glu Met Arg His Leu Leu Thr Ile Ile
            50                  55                  60


Thr Ser Arg Ser Leu Val Leu Leu Lys Phe Leu Lys Met Lys Ile Tyr
65                  70                  75                  80


Thr Phe Phe Gln Ile His Ile Ser Phe Ser Lys Tyr
                85                  90
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<210> 12
<211> 1662
<212> DNA

<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1662)
<223>

<400> 12

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Met	Val	Gln	Arg	Leu	Trp	Val	Ser	Arg	Leu	Leu	Arg	His	Arg	Lys	Ala	
1				5					10					15		

cag	ctc	ttg	ctg	gtc	aac	ctg	cta	acc	ttt	ggc	ctg	gag	gtg	tgt	ttg	96
Gln	Leu	Leu	Leu	Val	Asn	Leu	Leu	Thr	Phe	Gly	Leu	Glu	Val	Cys	Leu	
			20					25					30			

gcc	gca	ggc	atc	acc	tat	gtg	ccg	cct	ctg	ctg	ctg	gaa	gtg	ggg	gta	144
Ala	Ala	Gly	Ile	Thr	Tyr	Val	Pro	Pro	Leu	Leu	Leu	Glu	Val	Gly	Val	
		35					40					45				

gag	gag	aag	ttc	atg	acc	atg	gtg	ctg	ggc	att	ggt	cca	gtg	ctg	ggc	192
Glu	Glu	Lys	Phe	Met	Thr	Met	Val	Leu	Gly	Ile	Gly	Pro	Val	Leu	Gly	
	50					55					60					

ctg	gtc	tgt	gtc	ccg	ctc	cta	ggc	tca	gcc	agt	gac	cac	tgg	cgt	gga	240
Leu	Val	Cys	Val	Pro	Leu	Leu	Gly	Ser	Ala	Ser	Asp	His	Trp	Arg	Gly	
65				70					75					80		

cgc	tat	ggc	cgc	cgc	cgg	ccc	ttc	atc	tgg	gca	ctg	tcc	ttg	ggc	atc	288
Arg	Tyr	Gly	Arg	Arg	Arg	Pro	Phe	Ile	Trp	Ala	Leu	Ser	Leu	Gly	Ile	
			85					90					95			

ctg	ctg	agc	ctc	ttt	ctc	atc	cca	agg	gcc	ggc	tgg	cta	gca	ggg	ctg	336
Leu	Leu	Ser	Leu	Phe	Leu	Ile	Pro	Arg	Ala	Gly	Trp	Leu	Ala	Gly	Leu	
			100					105					110			

ctg	tgc	ccg	gat	ccc	agg	ccc	ctg	gag	ctg	gca	ctg	ctc	atc	ctg	ggc	384
Leu	Cys	Pro	Asp	Pro	Arg	Pro	Leu	Glu	Leu	Ala	Leu	Leu	Ile	Leu	Gly	
		115					120					125				

gtg	ggg	ctg	ctg	gac	ttc	tgt	ggc	cag	gtg	tgc	ttc	act	cca	ctg	gag	432
Val	Gly	Leu	Leu	Asp	Phe	Cys	Gly	Gln	Val	Cys	Phe	Thr	Pro	Leu	Glu	
	130					135					140					

gcc	ctg	ctc	tct	gac	ctc	ttc	cgg	gac	ccg	gac	cac	tgt	cgc	cag	gcc	480
Ala	Leu	Leu	Ser	Asp	Leu	Phe	Arg	Asp	Pro	Asp	His	Cys	Arg	Gln	Ala	
145				150					155					160		

tac	tct	gtc	tat	gcc	ttc	atg	atc	agt	ctt	ggg	ggc	tgc	ctg	ggc	tac	528
Tyr	Ser	Val	Tyr	Ala	Phe	Met	Ile	Ser	Leu	Gly	Gly	Cys	Leu	Gly	Tyr	
			165					170					175			

ctc	ctg	cct	gcc	att	gac	tgg	gac	acc	agt	gcc	ctg	gcc	ccc	tac	ctg	576
Leu	Leu	Pro	Ala	Ile	Asp	Trp	Asp	Thr	Ser	Ala	Leu	Ala	Pro	Tyr	Leu	
			180					185					190			

ggc	acc	cag	gag	gag	tgc	ctc	ttt	ggc	ctg	ctc	acc	ctc	atc	ttc	ctc	624
Gly	Thr	Gln	Glu	Glu	Cys	Leu	Phe	Gly	Leu	Leu	Thr	Leu	Ile	Phe	Leu	
		195					200					205				

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acc tgc gta gca gcc aca ctg ctg gtg gct gag gag gca gcg ctg ggc     672
Thr Cys Val Ala Ala Thr Leu Leu Val Ala Glu Glu Ala Ala Leu Gly
    210             215             220

ccc acc gag cca gca gaa ggg ctg tcg gcc ccc tcc ttg tcg ccc cac     720
Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala Pro Ser Leu Ser Pro His
225             230             235             240

tgc tgt cca tgc cgg gcc cgc ttg gct ttc cgg aac ctg ggc gcc ctg     768
Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe Arg Asn Leu Gly Ala Leu
            245             250             255

ctt ccc cgg ctg cac cag ctg tgc tgc cgc atg ccc cgc acc ctg cgc     816
Leu Pro Arg Leu His Gln Leu Cys Cys Arg Met Pro Arg Thr Leu Arg
            260             265             270

cgg ctc ttc gtg gct gag ctg tgc agc tgg atg gca ctc atg acc ttc     864
Arg Leu Phe Val Ala Glu Leu Cys Ser Trp Met Ala Leu Met Thr Phe
        275             280             285

acg ctg ttt tac acg gat ttc gtg ggc gag ggg ctg tac cag ggc gtg     912
Thr Leu Phe Tyr Thr Asp Phe Val Gly Glu Gly Leu Tyr Gln Gly Val
        290             295             300

ccc aga gct gag ccg ggc acc gag gcc cgg aga cac tat gat gaa ggc     960
Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
305             310             315             320

gtt cgg atg ggc agc ctg ggg ctg ttc ctg cag tgc gcc atc tcc ctg    1008
Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu
            325             330             335

gtc ttc tct ctg gtc atg gac cgg ctg gtg cag cga ttc ggc act cga    1056
Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg
            340             345             350

gca gtc tat ttg gcc agt gtg gca gct ttc cct gtg gct gcc ggt gcc    1104
Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala
        355             360             365

aca tgc ctg tcc cac agt gtg gcc gtg gtg aca gct tca gcc gcc ctc    1152
Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
        370             375             380

acc ggg ttc acc ttc tca gcc ctg cag atc ctg ccc tac aca ctg gcc    1200
Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala
385             390             395             400

tcc ctc tac cac cgg gag aag cag gtg ttc ctg ccc aaa tac cga ggg    1248
Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly
            405             410             415

gac act gga ggt gct agc agt gag gac agc ctg atg acc agc ttc ctg    1296
Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu
            420             425             430

cca ggc cct aag cct gga gct ccc ttc cct aat gga cac gtg ggt gct    1344
Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala
            435             440             445

gga ggc agt ggc ctg ctc cca cct cca ccc gcg ctc tgc ggg gcc tct    1392
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22

```
Gly Gly Ser Gly Leu Leu Pro Pro Pro Ala Leu Cys Gly Ala Ser
    450             455             460

gcc tgt gat gtc tcc gta cgt gtg gtg gtg ggt gag ccc acc gag gcc    1440
Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala
465             470             475                 480

agg gtg gtt ccg ggc cgg ggc atc tgc ctg gac ctc gcc atc ctg gat    1488
Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
                485             490             495

agt gcc ttc ctg ctg tcc cag gtg gcc cca tcc ctg ttt atg ggc tcc    1536
Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser
            500             505             510

att gtc cag ctc agc cag tct gtc act gcc tat atg gtg tct gcc gca    1584
Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala
            515             520             525

ggc ctg ggt ctg gtc gcc att tac ttt gct aca cag gta gta ttt gac    1632
Gly Leu Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp
        530             535             540

aag agc gac ttg gcc aaa tac tca gcg tag                            1662
Lys Ser Asp Leu Ala Lys Tyr Ser Ala
545             550


<210>  13
<211>  553
<212>  PRT
<213>  Homo sapiens

<400>  13

Met Val Gln Arg Leu Trp Val Ser Arg Leu Leu Arg His Arg Lys Ala
1               5               10                  15


Gln Leu Leu Leu Val Asn Leu Leu Thr Phe Gly Leu Glu Val Cys Leu
            20              25                  30


Ala Ala Gly Ile Thr Tyr Val Pro Pro Leu Leu Leu Glu Val Gly Val
            35              40                  45


Glu Glu Lys Phe Met Thr Met Val Leu Gly Ile Gly Pro Val Leu Gly
    50              55                  60


Leu Val Cys Val Pro Leu Leu Gly Ser Ala Ser Asp His Trp Arg Gly
65              70              75                  80


Arg Tyr Gly Arg Arg Arg Pro Phe Ile Trp Ala Leu Ser Leu Gly Ile
                85              90                  95


Leu Leu Ser Leu Phe Leu Ile Pro Arg Ala Gly Trp Leu Ala Gly Leu
            100             105                 110
```

23

```
Leu Cys Pro Asp Pro Arg Pro Leu Glu Leu Ala Leu Leu Ile Leu Gly
        115             120             125

Val Gly Leu Leu Asp Phe Cys Gly Gln Val Cys Phe Thr Pro Leu Glu
        130             135             140

Ala Leu Leu Ser Asp Leu Phe Arg Asp Pro Asp His Cys Arg Gln Ala
145             150             155             160

Tyr Ser Val Tyr Ala Phe Met Ile Ser Leu Gly Gly Cys Leu Gly Tyr
                165             170             175

Leu Leu Pro Ala Ile Asp Trp Asp Thr Ser Ala Leu Ala Pro Tyr Leu
            180             185             190

Gly Thr Gln Glu Glu Cys Leu Phe Gly Leu Leu Thr Leu Ile Phe Leu
            195             200             205

Thr Cys Val Ala Ala Thr Leu Leu Val Ala Glu Glu Ala Ala Leu Gly
    210             215             220

Pro Thr Glu Pro Ala Glu Gly Leu Ser Ala Pro Ser Leu Ser Pro His
225             230             235             240

Cys Cys Pro Cys Arg Ala Arg Leu Ala Phe Arg Asn Leu Gly Ala Leu
            245             250             255

Leu Pro Arg Leu His Gln Leu Cys Cys Arg Met Pro Arg Thr Leu Arg
            260             265             270

Arg Leu Phe Val Ala Glu Leu Cys Ser Trp Met Ala Leu Met Thr Phe
        275             280             285

Thr Leu Phe Tyr Thr Asp Phe Val Gly Glu Gly Leu Tyr Gln Gly Val
    290             295             300

Pro Arg Ala Glu Pro Gly Thr Glu Ala Arg Arg His Tyr Asp Glu Gly
305             310             315             320

Val Arg Met Gly Ser Leu Gly Leu Phe Leu Gln Cys Ala Ile Ser Leu
            325             330             335

Val Phe Ser Leu Val Met Asp Arg Leu Val Gln Arg Phe Gly Thr Arg
        340             345             350
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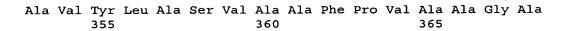
24

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Ala Val Tyr Leu Ala Ser Val Ala Ala Phe Pro Val Ala Ala Gly Ala
    355             360                 365

Thr Cys Leu Ser His Ser Val Ala Val Val Thr Ala Ser Ala Ala Leu
    370             375                 380

Thr Gly Phe Thr Phe Ser Ala Leu Gln Ile Leu Pro Tyr Thr Leu Ala
385             390                 395                     400

Ser Leu Tyr His Arg Glu Lys Gln Val Phe Leu Pro Lys Tyr Arg Gly
            405             410             415

Asp Thr Gly Gly Ala Ser Ser Glu Asp Ser Leu Met Thr Ser Phe Leu
            420             425             430

Pro Gly Pro Lys Pro Gly Ala Pro Phe Pro Asn Gly His Val Gly Ala
        435             440             445

Gly Gly Ser Gly Leu Leu Pro Pro Pro Pro Ala Leu Cys Gly Ala Ser
    450             455             460

Ala Cys Asp Val Ser Val Arg Val Val Val Gly Glu Pro Thr Glu Ala
465             470             475                     480

Arg Val Val Pro Gly Arg Gly Ile Cys Leu Asp Leu Ala Ile Leu Asp
            485             490                     495

Ser Ala Phe Leu Leu Ser Gln Val Ala Pro Ser Leu Phe Met Gly Ser
        500             505             510

Ile Val Gln Leu Ser Gln Ser Val Thr Ala Tyr Met Val Ser Ala Ala
        515             520             525

Gly Leu Gly Leu Val Ala Ile Tyr Phe Ala Thr Gln Val Val Phe Asp
    530             535             540

Lys Ser Asp Leu Ala Lys Tyr Ser Ala
545             550
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